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Sponsored by

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PANEL #1B: DATA QUALITY, DATA MANAGEMENT AND PUBLIC ACCESS

Presented by

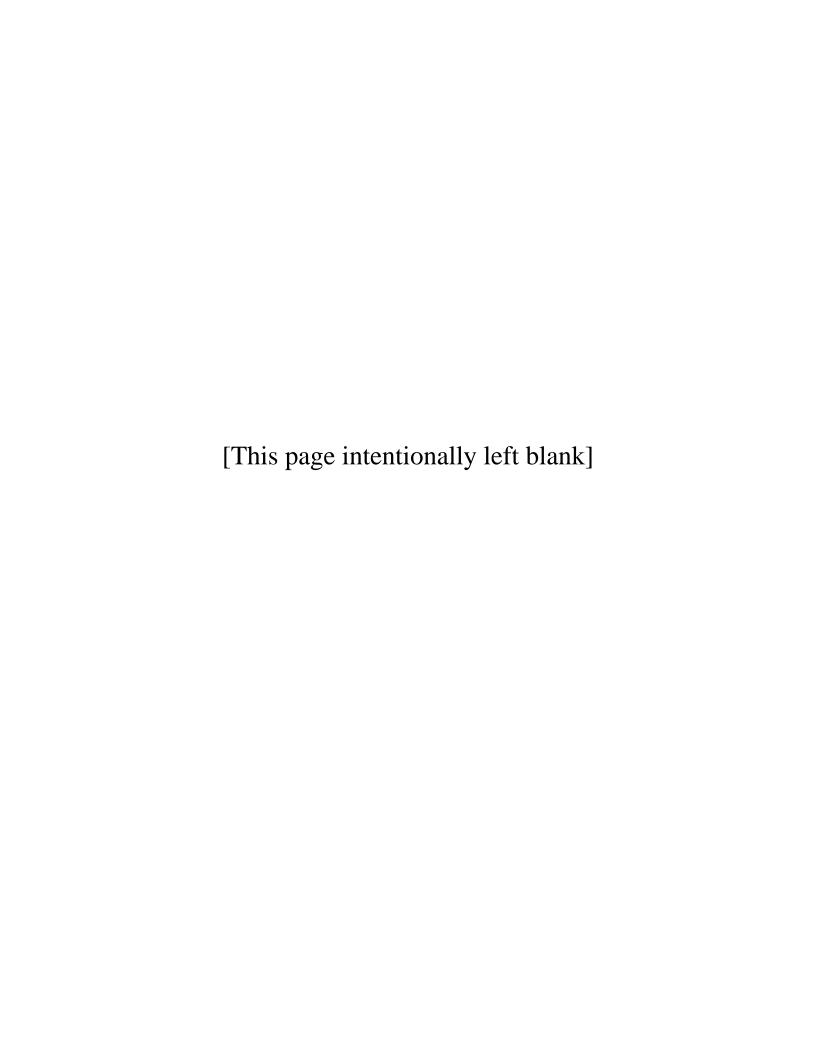
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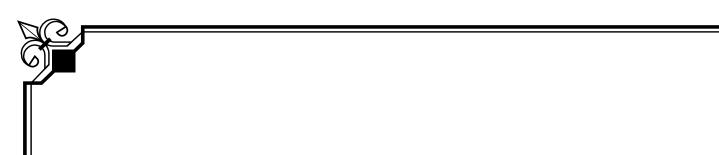
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Richard Darling Maine Department of Environmental Protection





Maine Department of Environmental Protection E-DMR Project

The Maine DEP is developing a web-based data input and storage system to collect and manipulate discharge monitoring and process control data from the various public and private wastewater treatment facilities in Maine. The system will allow facility operators to enter daily monitoring data and will produce Discharge Monitoring Reports (DMRs) for review and Electronic submittal to the DEP. The system will greatly improve the quality of the data submitted by eliminating errors associated with the transfer of data among several paper forms and the final entry of those data into the PCS system from the paper DMR forms.



Maine DEP E-DMR Project

Presented by: Richard Darling, P.E., CET

Notes

- Clients are wastewater treatment facility (WWTF) operators who don't like all the paperwork, such as discharge monitoring reports (DMRs), that they have to submit to the Department of Environmental Protection each month.
- The main problem with the current compliance management system is having to input the information from paper to PCS to ECHO - this double and triple-inputting is problematic when it comes to data quality assurance.



Background

- ◆ EPA Meeting in Boston in early 1999
- ♦ Invitation to apply for funds in May, 1999
- ♦ Proposal not funded in 1999
- ◆ Second round of funding in Fall 2000
- ◆ Applied for funding in October 2000
- ♦ Grant awarded in Spring 2001

Notes

- There was a regional EPA meeting in Boston in early 1999. One of the things they do in their Division is go before the legislature to talk about water quality. This required extracting data from the PCS system.
- Darling gave the presentation to a meeting at the Region 1 EPA office.
 In his presentation, Darling went through experiences he had trying to use the data in PCS and the many pitfalls.
- Up until a year before he gave this regional presentation, he had to take data directly from PCS and manipulate it using other database and spreadsheet tools. In 1998, the DEP established a mirror of the PCS system on their own Oracle server and only then he was able to easily extract the data and use it for any kind of analysis.
- Darling first put in the proposal for this STAG in 1999. It was funded in spring of 2001.



E-DMR Project

- ♦ Goals and Objectives
- ♦ System Outline.
- ◆ Stakeholder Group.
- ◆ Project Development.
- ♦ Where are we now?

- They looked at a number of other states that put together a data management system so as to better use this water quality information.
- Darling believes their efforts were not as effective because they put together a system for the regulators rather than for those being regulated.



E-DMR Project - Goals

- **♦** User Oriented
 - ◆Focus on the Users of the System
 - **♦** WWTF Operators
 - **◆** Compliance Inspectors
 - ◆ Technical Assistance Providers
 - **◆**Enforcement Officers
 - ◆Develop a system that people want to use

Notes

- Darling and his colleagues paid a lot of attention to the various stakeholders (WWTF operators, compliance inspectors, technical assistance providers, enforcement officers) to make sure that the system would be useful to those who would be using it.
- ME discussed aspects of the ideal system with the operators of the systems, not with the designers, in other states.
- They found that people sometimes felt electronic systems were more of a hassle than the paper systems.



E-DMR Project - Goals

- ♦ Improved Data Quality
 - ♦Eliminate "paper shuffle"
 - ◆ Reduce opportunities for "clerical" errors
 - ◆Provide "hard" and "soft" validity checks
 - ◆ "Hard" validity checks for required data
 - ◆ "Soft" validity checks warn the user of potential bad data
 - ◆ Provide for internal and external review

Notes

- Example of entering data into the old system: Right now a
 WWTF operator does a test for a parameter to develop a bench
 sheet that reflects the raw data. Then, at the end of the month,
 the operator uses the summary data and develops minimums and
 maximums for a data quality check. Only then does the operator
 put it into the system.
- There are three transfers of data before it is entered into the existing system (PCS).



E-DMR Project - Goals

- ◆Improved Data Completeness
 - ◆Electronically collect and store discharge monitoring data and process control data
 - ◆Store daily data as well as monthly summary data
 - ◆ Maintain the "authoritative" data source
 - ◆ Preserve data integrity
 - Make all data available in a usable and useful system

- If there is a mistake, the DMR has to be sent back. Inspectors can no longer call the facility if they see a mistake, nor fix the mistake directly.
- Examples of common mistakes on DMRs: clerical errors, transposed figures, wrong decimal points, impossible occurrences (ex. pH of 37)
- This new system attempts to reduce some types of errors. There
 are built-in validity checks so that when they enter the data
 there will be a data check (some will be "hard": pH must be
 between 0-7, some are "soft": these will be set by the operators
 themselves); the system will also allow the operator and the
 inspector to conduct an internal and external review.



E-DMR Project - System Outline

- **♦** System Software
 - **♦**Web Based
 - ◆Allow entry of daily monitoring data or just summary data (DMR data)
 - ◆Perform validity checking of data entered
 - ◆Perform end-of-month calculations

Notes

- Most enforcement action in ME is based on the data that comes out of the DMR, therefore it is important to feel confident that the data is as correct and accurate as possible
- DEP can maintain the data integrity of it in their server so that they will know which is right, PCS or their system.
- Another PCS problem is that it uses only the final monthly DMRs, which is not enough; this system will capture some of the daily operating data and then the system will calculate the numbers that create the DMR.
- All of the data will not be able to be changed by the state only by the operator.



E-DMR Project - System Outline

- **♦** System Software
 - ◆Accept, verify and store data from WWTFs
 - ♦ Notify sender and inspector of receipt of data
 - ◆Translate data to DEP Oracle server format and store in Oracle data tables
 - ♦ Maintain an audit trail of all transactions

Notes

- The system DEP has developed is a Web-based system (as opposed to client-server system) that allows for the daily entering of data which will automatically generate the DMR at the end of the month.
- The user can operate the system any way they choose.
- When the user fixes their digital signature to it, a notification will be sent to the inspector. Once the inspector approves it, it will become the "official" copy.
- This system will transfer the data into the Oracle system and maintain an audit trail to know who delivered what.



E-DMR Project - System Outline

- **♦** System Software
 - ◆Produce printed and electronic reports
 - \bullet Facsimile of the DEP Form 49
 - ♦ EPA Discharge Monitoring Report DMR
 - ◆Data Will be stored on a State Computer but not visible to the DEP until formally submitted
 - ◆ "Submitted" data will be stored in nonvolatile storage

- DEP will not be able to see the data until it is submitted by the operator.
- In addition, the data will be stored in a manner where DEP can't change it.



E-DMR Project - System Outline

- ♦ System Software Capabilities
 - ♦ Allow review of daily monitoring data
 - ◆Perform validity checking of data entered
 - ♦Flag all violations and near violations
 - ◆ Allow trendlines of one or more parameters to be generated

Notes

- This software system allows DEP and the operators to review the daily data so they can see more than the summary data; this is very important for compliance assurance and data quality.
- In addition, this system will flag violations and near-violations so it's not up to the inspector to identify these.
- Many times at very small treatment systems, DEP would set them
 up with some software and teach them how to use it. Inevitably
 they'd say, "When will I be able to file my DMR electronically?"
- Users of system: WWTF operators (data quality starts with them).
 Old EPA computers were donated to WWTFs. Currently, about 85% of WWTF operators have computerss



E-DMR Project - Stakeholders

- ♦ Key element to developing a userfriendly system
 - **◆**Three Municipal WWTF Operators
 - ♦Two Industrial WWTF Operators
 - **♦**DEP representatives
 - ♦2 Compliance Inspectors
 - ♦2 Technical Assistance Staff
 - ♦1 Licensing Staff
 - ♦1 Enforcement Staff
 - ♦1 Data Management Unit Staff

Notes

 Compliance inspectors review the DMRs that come in from the plants. In August 2002, two of DEP's inspectors retired on the same day, so Darling became one of the inspectors for about 6 months. He didn't realize how much paper they were deluged with every month; and he realized the need to make sure their voices (the intermediaries) were heard.



E-DMR Project - Stakeholders

- ◆ Several Meetings since August 23, 2001
- ♦ Helped develop the System Requirements
- ◆ Meeting with BIS to define the system
- ♦ Will form the basic group to Beta test the software

- DEP started the software development process in August 2001.
- They meet regularly with their Bureau of Information Systems to get educated about using, collecting, and putting the data into the system.



E-DMR Project - Going Forward

- ◆ System Definition Ongoing
- ◆ Software Development Spring 2003
- ◆ Beta Software Deployment & Training Summer 2003
- ◆ Revisions Autumn 2003
- ◆ Final Deployment & Training -Early 2004

Notes

- Beta version of software should be ready in the summer.
- The final version should be rolling out in Fall 2003.

Questions and Answers

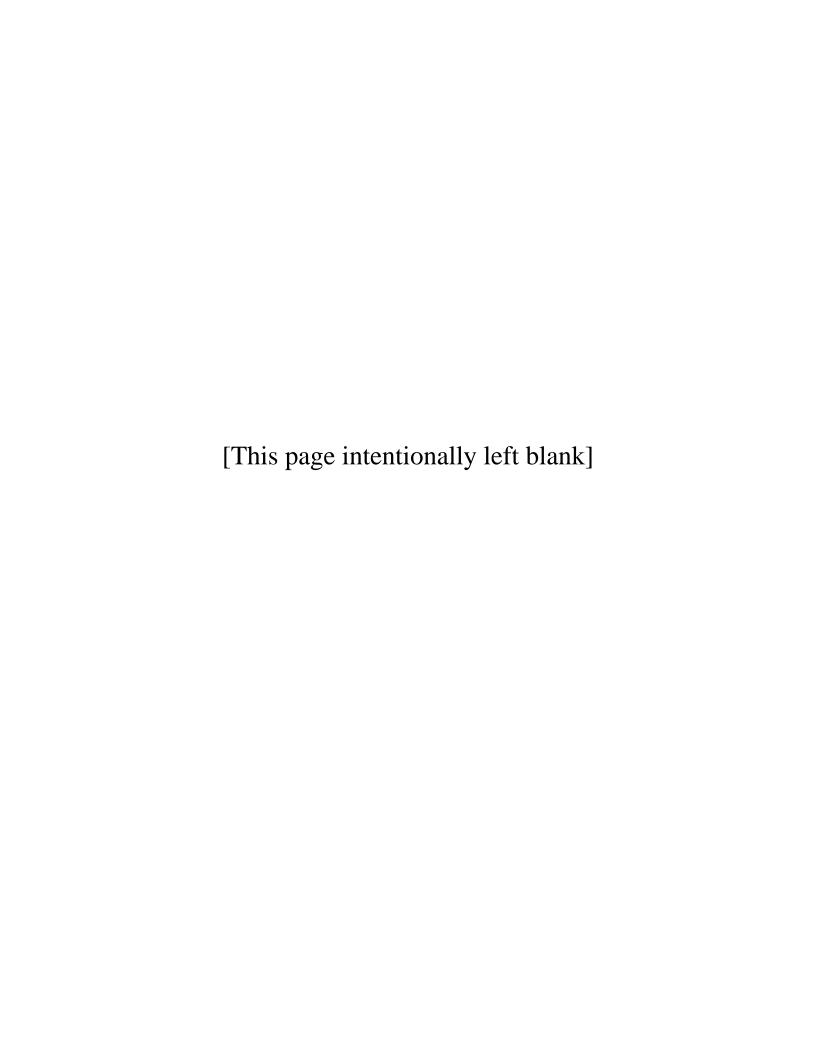
- Q: Are you doing the software development in-house?
- A: Bureau of Information Services was looking for work and so DEP has been working with them on this project (along with One-Stop and network node) due to the fiscal crunch.
- Q: Is it mandatory for WWTF operators (i.e. data providers) to use this new system?
- A: DEP is working with people to learn how to use it; there
 probably will be some people who operate seasonally who won't
 use it

Questions and Answers

- Q: What kind of software do you need to use this system?
- A: We're using a development tool that Oracle provides to function as the interface between the Oracle databases, there will be some java programming to do some of the queries.
- Q: What did developing this software cost you?
- A: Approximately \$170K went to our Bureau of Information
 Services
- Q: Does the cost include digital signature software?
- A: Yes.

Questions and Answers

- Q: Does this system comply with EPA's electronic compliance rules?
- A: Yes, this system meets all criteria established in their grant, but there will be some work to comply with the additional requirements set by EPA's Cross-Media Electronic Reporting and Records Rule (CROMERRR).
- Q: If DEP uses Oracle, aren't you doing double data entry to submit to EPA?
- A: DEP downloads the PCS into their Oracle system twice weekly but sometime they do have kinks. Data coming in through their e-DMR will form the base of the system.







Overview of the Inspection, Compliance and Enforcement (ICE) Database

Nicole Heffington Arizona Department of Environmental Quality





ICE System Summary Nicole Heffington April 7, 2003

During July of 2002, ADEQ released an Oracle based computer system known as the Inspections, Compliance, and Enforcement (ICE) Database. This system was successfully integrated into Azurite during three phases. The first phase included the roll-out of inspection and compliance transaction screens. The second phase was comprised of inspection and compliance reports, and the third phase involved the ability of the system to automatically generate enforcement letters.

The inspection screen allows users to track inspection locations, events, as well as other geographical and legal information. The compliance screen allows users to enter similar information such as events, violations, citations, and other additional information for a case. The compliance assistance screen allows users to track information about various groups that assist ADEQ with compliance issues.

To compliment the information entered into the system, reports were created which allow staff and management to track inspection and case statuses. Additionally, the automatic generation of enforcement letters has allowed the agency to generate a standard, uniform, document output that is in strict accordance with ADEQ's Compliance Handbook.

The implementation of this system has had many benefits. Along with ICE came the ability to uniformly enter inspection and case data and has allowed ADEQ to track pertinent information regarding enforcement and compliance on an agency wide level. Furthermore, with the help of the OECA grant, ICE has been able to strengthen the business processes within the programs at ADEQ and has made our inspection and compliance process more structured and sound.

Overview of the Inspection, Compliance, and Enforcement Database

Presented by Nicole Heffington Arizona Department of Environmental Quality April 15, 2003

I. Introduction

- a. Overview of the Inspections Compliance and Enforcement (ICE) System
- b. Integration of ICE into our current Azurite (Arizona Unified Repository for Informational Tracking of the Environment) system
- c. Benefits of the ICE system

II. Findings & Goals of the Project

- a. Business Processes and Documentation Standards throughout ADEQ
- b. Centralization of Information in Azurite
- III. Issues encountered, lessons learned, problems and how did you or how are you overcoming those problems?
 - a. Process Standardization
 - b. Data Sensitivity
 - c. Oracle Report Builder

IV. Results & Outcomes

- a. ADEQ Compliance Handbook Requirements
- b. Business Processes within ADEQ
- c. Data Standardization Outcomes
- d. Reporting Tools
- e. Data Quality Management Efforts
- f. Environmental Impacts
- V. Can the results/findings of the project be shared?
 - a. Documentation and System Specification Requirements
- VI. Questions & Answers

Overview of the Inspection, Compliance, and Enforcement (ICE) Database

- Introduction
- Findings & Goals
- Issues faced, lessons learned, and problems encountered
- Results & Outcomes
- Can the results and findings be shared?
- Questions & Answers

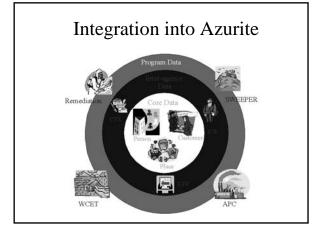


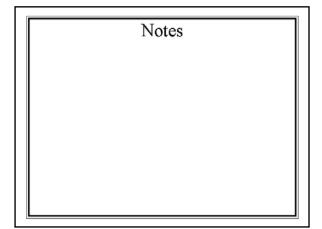
- AZDEP received a STAG in 2000 to build an Oracle-based inspection-compliance enforcement system (ICE).
- Objective: Integrate ICE into AZURITE system.

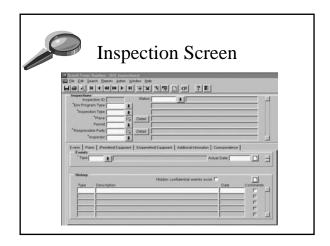


Introduction

- Integration of ICE into our current system known as Azurite (Arizona Unified Repository for Informational Tracking of the Environment)
- Overview of the ICE system
- Benefits of the ICE system

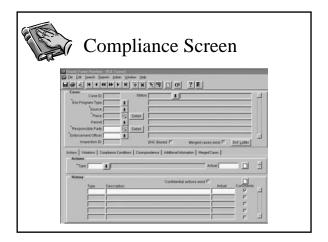






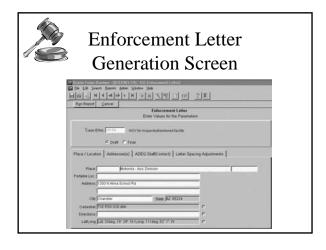
Notes

- Inspection screen: Here one is able to input permit numbers, inspection information, and responsible party information.
- There is also an events screen to keep track of what has happened in a particular case.



Notes

- Compliance screen: Has input areas for compliance conditions, compliance history, violation information, and legal details.
- Case screen: Where information is inputted regarding citations given and which violations occurred.

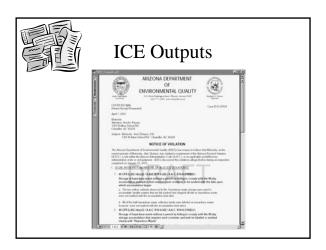


- Enforcement letter: This database can automatically create an enforcement letter that has all the legalese already developed.
- The inspector simply enters the operator-specific information.
- This letter-development function has letter-spacing flexibility, which allows the user to fix the length of the letter, if necessary.
- Using this automatic letter creation allows their legal department to do other things rather than answer specific questions about what to put in the letter, and enables standard documentation.

Compliance Assistance Screen

Notes

- Compliance Assistance screen: This part of the database allows the inspector to track efforts toward helping specific companies to achieve compliance.
- In addition, it allows AZDEP to track its aggregate efforts toward compliance assistance to help figure out what works and what doesn't in terms of assistance (e.g., meetings v. pamphlets).



Notes

Findings & Goals

- Business Processes and Documentation Standards throughout ADEQ
- Centralization of Information in Azurite



- Findings and goals: Many business processes were different between offices (air vs. water office).
- By developing the process first and then developing ICE, they were able to encourage a consistent compliance assistance process and consistent ways of recording information despite different ways of doing inspections, etc.



Issues and Problems and Lessons...Oh My!

- Standardization of Business Processes
- Data Sensitivity
- Letter Generation using Report Builder

- Notes One hurdle this project was able to overcome was process standardization: the project had a very strong sponsor who was integral to accomplishing the software development and making sure that the different offices worked together to develop a consistent system.
- They also developed a compliance enforcement handbook to explain the system to new users.
- Data sensitivity was an issue, so they created security groups, user roles, and used security screens.
- Oracle report-builder currently generates the enforcement letters, but is not as flexible as they would like. They are looking into different systems.



Results & Outcomes

- ADEQ Compliance Handbook Requirements
- Business Processes within ADEQ
- · Data Standardization Outcomes
- Reporting Tools
- Data Quality Management Efforts
- Environmental Impacts

Notes

- This efficient system encourages facilities to come into compliance.
- They are willing to share documentation, and AZDEP has detailed screen prints and a huge data diagram that shows all the pieces of data together, available for distribution.

Helping the Environment









Share & Share Alike

- Documentation
- System Specifications



Notes

Question & Answer Session HEVADA Orand Canyon Nat'l. Pic. Nat'l. Pin. PAINTED Larger Wipskit. Red Colorado Nat'l. Pin. Petrifica Colorado Nat'l. Pin. Prezoett A RIZONA Colorado Temps Hesa Casa Grande Nat'l. Pin. Nat'l.

Questions and Answers

- Q: Inspections and full compliance evaluations are two different types of evaluations. Are these handled in the database or can the system handle additional information, like different types of inspections?
- A: Yes, this information can be handled in the database.
- Q: How transferable is the information in the ICE database from state to state?
- A: Moving ICE to another system is possible, however, because it is dependent on our existing AZURITE database, some analysis would be required to determine the work effort involved.

Questions and Answers

- Q: Are you moving toward working with GIS?
- A: Yes
- Q: Is your database web-based?
- A: Not yet, but we have been considering that.





Delaware Project on Data Quality and Public Access

NV Raman
Delaware Department of Natural Resources and
Environmental Control





Delaware's Office of Environmental Compliance Grant FY 2001

DNREC has developed its integrated environmental information system called Delaware Environmental Navigator (DEN), incorporating internet-based interactive GIS application that allows the public access to information about most sites of interest to DNREC. Information on this web site (http://www.dnrec.state.de.us/DNRECeis/) includes location, basic site description, monitoring activity summary, contact information, web links for more information and ratings of each site to cause contamination by media and contaminant class. Under the Office of Compliance Grant awarded in 2001 DNREC accomplished the following in the areas of Data Quality/Data Management/Public Access:

- 1. Web enabling portions of the DEN containing information on permits, compliance and enforcement for RCRA and Underground Storage Tanks for public access
- 2. Create a Document Imaging System to store permit, enforcement and compliance documents in electronic format in the DEN and web enabling them for public access.
- 3. Manual verification of compliance, enforcement and permit data in the RCRAInfo (Resource Conservation and Recovery Act Information System) maintained by EPA with the paper records to cleanup the existing data.
- 4. Creation of modules in the integrated information system called Delaware Environmental Navigator (DEN) for storing RCRA permit, compliance and enforcement data.
- 5. Creation of modules for importation of underground tanks permit, enforcement and compliance data into DEN
- 6. Creation of converter for automatic export of data from DEN to and RCRInfo.



Annual Office of Compliance Grant Conference April, 15, 2003

Delaware Project
On
Data Quality & Public Access

Notes

Presenter: NV Raman

Background

- DNREC has integrated its core environmental information together into one place called Delaware Environmental Navigator
- Goal is:
 - to improve internal data management
 - communication with the public
 - submit quality data electronically to EPA
- · Basic data categories include:
 - facility data
 - natural resources data
 - Monitoring data
 - Base map data
- · Internet based interactive GIS system

Notes

- At the time, there wasn't money available to create a new system, so we started doing data modeling using EPA's FITS 2 model
- This project was begun because Delaware (DE) legislators wanted all enforcement actions on a publicly-accessible Web site
- DE legislature appropriated money to this project from the penalty fund (\$150K) initially.
- DNREC was then able to get a One-Stop grant, which still was not enough funding for the whole project; then the STAG was awarded.

Overview of the Project under Compliance Grant

- The project under the Compliance Grant focused on two areas:
 - Data Quality for RCRA and UST
 - Public Access of data and records for RCRA and LIST
- No database existed at the state level for RCRA; UST data stored in an Access database

- DNREC has focused on data quality assurance for their RCRA and UST information, and on providing public access to this data.
- Getting adequate funding was a constant struggle (initially thought to cost \$600K for this segment of the project, weasked for \$400K and got \$215K).
- Previously there was no state-level database for information on RCRA. The state was directly inputting their RCRA information into EPAs RCRAinfo and using that for disseminating information at the state level.
- UST data was stored in an Access database.

Goals of the Project

- · Improve Data Quality
 - Verification of compliance, enforcement and permit data in RCRAInfo System against paper records to cleanup existing data
 - Creation of modules in Del. Env Navigator (DEN) to store this data imported from RCRAInfo
 - Creation of modules in DEN to import compliance, enforcement and registration data for USTs from the existing Access database.
 - Creation of converter to export data to RCRAInfo

Notes

- Delaware's Natural Resource and Environment Control's (DNREC) information systems group is attempting to integrate the different systems used by the Department.
- They began to plan for this integration in July 2000.
- The Delaware Environmental Navigator (DEN) will improve internal data management so that all the data for one facility is archived in one place.
- This system will also ensure they are able to provide quality data to EPA.
- DEN contains facility data that has been integrated with GIS and has been implemented on a Web-based software platform.

Goals of the Project – contd.

- · Public Access
 - Web enable the RCRAInfo and UST data to make them available to the public
 - Integrate RCRA and UST documents into the existing document imaging system to allow public to view these documents online

Notes

- Information will be accessible to the public, so they are able to convince people they aren't hiding anything.
- DNREC was also able to integrate the document management system they already have into the environmental navigator to make all the documents available to the public.
- Funding was received to purchase scanners and DNREC has scanned the documents relevant to the Superfund program. These are available on the Internet.

Lessons Learned, Issues Encountered & Problems Resolved

- The Assistance was for \$215K. This only partly paid for the cost of implementing the project
- Total cost of the project was about \$600K.
- It was very difficult to correctly estimate the cost of the project until the project was half way through.
- UST did not want to give up their existing system; involved a lot of convincing and cajoling
- Since RCRA never had a database data entry into the new system became an issue
- Building translator to export data to EPA's system can be frustrating

Notes

- It is hard to estimate cost unless you do a detailed design and you can't do a detailed design unless you have money.
- We needed to centralize the data entry process, though it was a challenge to make the different offices use the new system. The UST staff didn't want to give their system up.
- Now they are tracking so much more information on RCRA so one person can't input all the data into RCRAinfo and into the DEN, but the cabinet secretary really wanted this to happen.
- A data translator is needed to move the data from DEN into the EPA system and they are still dealing with that.

NV Raman, DNREC 2

Lessons Learned, Issues Encountered & Problems Resolved

- Keeping the data current is a major issue; since the public has access to the data, the expectation is that the data will be current
- Support from the highest level of management is needed to bring about the cultural change
- Constant interaction with end users is critical
- The line of communication and expectations must be clearly documented.

Notes

- It is important to keep data current especially when the public knows that the data is available and should be up-to-data.
- It is also important to have constant interaction with all the users, especially the staff in the program, even if you only have one contact.
- There has been an increased demand for reports generated from the system.

Can the Project be Replicated to Other States?

- If another State wants to use Delaware model (which complies with FITS2 model) we are willing to give away the system
- The system is built on Wintel platform using IIS; VB; ASP; VB.NET; ASP.NET; SQL Server and Crystal Reports
- Delaware has integrated Air, Waste Water, Solid Waste, Haz Waste, UST, Sediment Control, Parks, Salvage Yards, Recreation, Beach Monitoring and Spray Irrigation data so far
- Consists of elaborate enforcement tracking and permit tracking sub systems
- Superfund will be integrated by May 2003; Wetlands, Septic and Water Supply data integration is ongoing
- System has elaborate GIS capabilities using ArcIMS

Notes

Results and Outcome

- RCRAInfo data imported into the Navigator and most of the data cleaned up; data entry forms developed; data currently being entered into the Navigator and RCRAInfo.
- The translator to export data from Navigator to RCRAInfo being tested; TPA is about to be signed; once data flow from Navigator to RCRAInfo is established double data entry will be eliminated (June 2003)
- UST data from the existing Access database imported into Navigator; and data entry forms created; data currently being entered into both systems; ad hoc query reports are being created for UST; once this is completed double data entry will be eliminated (July 2003)

Notes

- It is hoped that by July 2003 they will have one system that will eliminate double data entry.
- They haven't started scanning the RCRA or UST documents yet because they wanted to get data entry all set up.
- The inspection page will allow people to download all permit document data at one time
- The system is able to answer questions about DNREC dealings with specific programs: what permits each facility has; what are potential sources of contamination in a watershed; violations at any facility; etc.

NV Raman, DNREC

Results and Outcome (contd.)

- Two scanners procured to begin scanning RCRA and UST documents. Actual scanning will not begin until August 2003 when the double data entry will be eliminated.
- Public data view for UST and RCRAInfo data created; data is available for the public to view at:
- http://www.dnrec.state.de.us/DNRECeis/
- Public can get answers to questions such as:

 Has DNREC had any current or past dealings with a piece of
- What environmental permits are held by an industrial facility?
- Are there any environmental concerns with a piece of property being considered for acquisition for a park expansion?
- Where are the potential sources of contamination in my watershed?
- Are there any wetlands mapped on a property being considered for development?
- Have there been any violations of any permits at a facility?

Notes

Contact

- · N. V. Raman
- DNREC
- 302-739-2060
- nv.raman@state.de.us

Questions and Answers

- Q: Can the database be moved to other states?
- A: Yes, if they don't have any databases as of yet. This
 database is based on a Windows Intel platform, SQL server,
 and is Microsoft-based. Also, it might be possible to only use
 parts of this program

Questions and Answers

- Q: RCRAinfo is a relatively modern EPA system. What factors made you disinvest from RCRAinfo and begin downloading the information?
- A: EPA keeps changing their system, and so DE was having to keep changing their system. Xml data makes it easier to export data, and DE also wanted to include more permit and compliance information than is tracked by RCRAInfo. The functional requirements at the state level required something more sophisticated than RCRAinfo.

Questions and Answers

- Q: In terms of scanning those documents, what sort of resource issues are you having?
- A: We got money from EPA, and the major investment in hardware and software is all done. Now we need the support staff to do the actual scanning. DNREC has experience with scanning because we did the Superfund documents, so we already know how things are going to be organized.
- Q: Are you going to disseminate efficiency information?
- A: Yes, we are going to disseminate information on how to access the attached metadata and see the original documents.





NESCAUM Enforcement Projects

Lisa Rector Northeast States for Coordinated Air Use Management (NESCAUM)





Abstract NESCAUM Enforcement Data Project

Interest in developing methods to assure completeness and accuracy of this data, to improve the efficiency of data transfer from state to national databases, and to expand the universe of data gathering is extremely high in the states. NESCAUM is working on a multi-state effort to tackle these problems. The following items outline the major goals for this proposed project:

- Assure that accurate and timely enforcement data for air programs are held in national and state data systems
- ► Improve the efficiency of transferring state air data to national database systems
- Simplify submission and tracking of HPV information to AFS through action linking
- ► Maintain accurate facility level information
- ► Increase public access to accurate and timely compliance/enforcement information
- ► Measure compliance and enforcement activities against national performance measures

The following is an overview of the major project components. Section III contains details for each of these components:

- Upgrade the UI for action linking and implement its use in a minimum of four states
- Train state staff on effective data management techniques
- ► Develop Quality Assurance Plans (QAPs) to create methods to assure data quality before entered into AFS and once entered into AFS essentially a closed-loop system for assuring data quality
- Create Internet-based tools for the public access to this information
- Create tools that states can use to reconcile facility data

NESCAUM Enforcement Projects

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Notes

 Description of NESCAUM: Coordinates with Northeast states on air policy issues with a staff of 35.

Project Description

- Project focuses areas:
 - Quality Assurance Plans
 - Update software to transfer information from state to federal systems
 - Develop methods for states to provide accurate information to the public
 - Develop methods to ease development of universe of sources

Notes

- Goal of this project: Make sure the data going into AFS is of good quality.
- NESCAUM is updating data translator as well, because 71 states and agencies that enter data into AFS also maintain their own systems.
- EPA had developed their own data translator but it was slow and NESCAUM got the grant to update it.
- The Universal Interface (UI) data translator is where they
 made the most progress; the UI allows for faster and better
 data translation to EPA.

Project Goals

- Improve efficiency and accuracy of data transfer between state and federal data systems
- Simplify tracking of HPV information in AFS
- Maintain accurate facility level information
- Measure C & E activities against national performance measures
- Increase public access compliance/enforcement information

- NECAUM is also trying to simplify the tracking of high priority violators (HPVs) and find better ways to maintain accurate facility names because they change often.
- This project also attempted to increase public access to compliance information.

Project Timeline

- Phase I began October October 2000 and ended March 2002
- Phase II began January 2002 and continues through September 2004
 - UI Upgrade
 - Quality Assurance Plans for secondary data
 - Public Access Project
 - Data Reconciliation

Notes

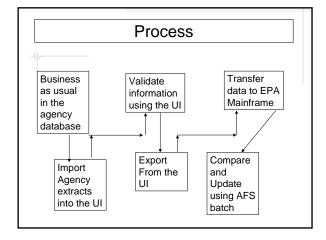
- The Universal Interface (UI) overhaul involved transferring the software platform from a Microsoft Access-based engine to a Web-based browser platform.
- NESCAUM was trying to build a data system that would work with many different software platforms.

Issues/lessons learned Universal Interface

- Purpose of the UI
 - Reduce the effort needed to report federally required data
 - Assist agencies with a data system or in the process of planning and/or building one
 - Replace duplicate entry or enhance current batch processes with highly efficient QA process
 - Handle all MDR's including new CMS data elements

Notes

- NESCAUM wanted to reduce the effort required to report state data to the federal government. This effort also forced the states to organize their data better.
- Once you have configured your system to use the Universal Interface, the resource gains are excellent.
- For the air program, there are many different programs that are entering data.
- Follow the data procress map [see slide].



Notes

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UI Upgrade - what we did

- Update platform to browser-based system
- Add new data elements
- Action-linking capability for HPV data

Notes

- They have built-in QA/QC throughout the data translation to make sure EPA gets good data.
- They have also added minimum data requirements to the old UI.
- This allows them to do time-tracking for HPVs—this is very important for the air program.

Issues/lessons learned Burden Reduction

- Saves development and maintenance costs
- Simpler transaction formats
- Eliminates duplicate data entry
- Reduces time and resources
- Synchronizes data validation tables

Notes

- Use of this Universal Interface allows for a significant burden reduction.
- States using the UI report a 50-70% reduction in resource use—this kind of time-savings is not uncommon.
- The Universal Interface can be used by many different states.
- It has a simpler format than the old system.
- For states that are doing monthly updates, it has been able to identify weaknesses in the data stream because it eliminates double data entry and synchronizes data elements for OA/OC. In the end, EPA gets better data.

Issues/lessons learned Data Quality

- Accurate and complete data submitted to EPA
- ◆ Identification of weaknesses in data stream
- ♦ Validation equivalent to AFS
- ◆ Timely identification and correction
- Prevents inappropriate duplicate actions
- Eliminates errors caused by manual entry

Current UI Users

Thirteen agencies using the UI

- Alaska
- North Dakota
- Connecticut
- Oklahoma
- Louisiana
- Ohio
- Maine
- Puget Sound
- Nebraska
- ◆EPA Region I
- ♦ New Hampshire
- New Mexico
- EPA Region 7

Notes

- Currently, there are 13 agencies that are using the UI.
- Six states are currently evaluating the UI.
- ME was the beta test site.

Interested Agencies

Six states evaluating the UI

- Michigan
- ♦ Idaho
- ♦ Kentucky-Jefferson County
- Arizona
- Hawaii
- Oregon

Notes

Outcomes/Results Maine's experience

- Prior to UI
 - Direct AFS user significant staff resources to input data into AFS and state system
 - No built in QA/QC
 - Common errors such as double entry of facilities, status often neglected and difficult to determine, and "creative" action code entries

Notes

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Outcomes/Results Maine's experience

Post UI

- State data system is multi-functional
 - ◆ Inspection staff accomplish more than one task when entering data
- State data system has built in QA/QC
 - e.g. code creativity is abolished
- UI has built in QA/QC
- 70 percent resource reduction for data entry

Notes

Quality Assurance Plans

- Develop plans to for states regarding data quality issues such as information management, data entry, and data conversion.
- Plans will develop protocols for quality checking information prior to uploading data into AIRS/AFS and methods to query AIRS/AFS to check information after uploading.
- ♦ Develop Generic QAPP for AFS data
- Develop "how to" manual for development of QAPPS for secondary data
- Develop methods to QA/QC data
- Project Timeline: Completed Summer 2003

Notes

- NESCAUM has also worked on developing QAPs (Quality Assurance Plans), which are plans for states to help them with information management, data entry, and data conversion.
- This information helps permit people to learn what they need to be collecting information on, how often, etc.
- OAPs make sure the data flow is correct and make sure that all the different public access systems are reporting to the appropriate information systems (OTIS, ECHO, etc.) correctly before EPA looks at it.

Data Reconciliation

- Use private databases to assist states to:
 - reconcile data held in state databases
 - target facilities that might be non-notifiers
- Develop protocols for targeting and data reconciliation protocols
- ◆Timeline: Project completion Fall 2003

- NECAUM is currently trying to figure out when ECHO is updated so states can get their information in right before that—NESCAUM would like to be able to build this into their OAPs.
- They also want to build this system to interface with other private sources of data like Dun and Bradstreet so the states can make sure they have all the facilities they should have in their system; NECAUM is currently working to buy some bulk time from Dun and Bradstreet to accomplish this.

Questions and Answers

- O: How do you handle it when EPA changes its system, like adding a new column or a new code?
- A: There is ongoing maintenance to the UI, and another state
 has a grant to do ongoing XmI to update the UI. They have
 modified the UI to track changes to AFS. The UI is an EPAowned product, so they are working with the states,
 NESCAUM, and EPA to make sure they deal with
 integrating the changes to the system.

Questions and Answers

- Q: Back to the process slide, if one person is usually responsible for UI uploads, who does the validation?
- A: The program will report the error if there are problems.
 Extraction query maps your data and the system will prevent you from submitting it until you have fixed all the problems, because it uses all the same data quality checks as AFS. In addition, because you are never dealing with AFS itself, you don't have to have someone on staff who really knows AFS.

Questions and Answers

- Q: How does someone get your system?
- A: The latest upgrade is just being released. I can give the Web site address to you and then you can download the system and the user manual. I also recommend talking to your regional AFS manager for some additional help first, as there may be some old data in AFS that needs to be cleaned up.

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